

ENTERAL-FIRST MANAGEMENT FOR NEONATAL HYPOGLYCAEMIA: A RETROSPECTIVE MATCHED COHORT STUDY

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Northern Health



RESEARCH WEEK
19-22 OCTOBER 2026
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BACKGROUND

- Neonatal hypoglycaemia affects up to 50% of at-risk neonates and carries a risk of lasting neurodevelopmental harm.
- Significant variation exists in escalation thresholds to IV dextrose across Australian neonatal units, yet comparative evidence in matched cohorts is limited.
- IV dextrose requires cannulation and NNU admission, separating mother and baby during breastfeeding establishment.

AIM

To evaluate the efficacy of enteral feeds (ENT) compared with intravenous therapy (IVT) in neonates with confirmed hypoglycaemia, examining time to normoglycaemia, length of neonatal unit (NNU) stay, recurrence, and secondary morbidities.

METHODS

Retrospective matched cohort study of 2,119 neonates with confirmed hypoglycaemia admitted to NNU between Dec 2011 - Sep 2023.

Two 1:1 matched comparisons were formed based on gestational age, birth weight and initial glucose level:

- ENT-only (n=522) vs IVT-only (n=522)
- ENT+IVT (n=69) vs IVT-only (n=69)

Multivariate regression adjusted for sepsis, hyaline membrane disease (HMD), and hypothermia.

RESULTS

Baseline Characteristics: ENT vs IVT

Variable	ENT (n=522)	IVT (n=522)	OR (95% CI)	p-value
Gestation (median, weeks)	37.3	37.4	0.89 (0.67-1.14)	0.174
Birthweight (mean, g)	2,824	2,873	-	0.283
Initial glucose (median, mmol/L)	1.9	2.0	1.33 (0.88-1.54)	0.163
Birth mode				0.005
Vaginal	44%	34%		
Instrumental	13%	16%		
Emergency LSCS	28%	37%		
Elective LSCS	16%	13%		
Paediatric team at birth	33%	45%	0.60 (0.47-0.77)	<0.001
Apgar ≥9 at 5 min (median cat.)	Cat. 3	Cat. 3	0.45 (0.03-7.40)	0.290

Table 1. Baseline characteristics of the enteral-only (ENT) and intravenous therapy (IVT) matched cohorts (n=522 each), matched on gestational age, birthweight and initial glucose level.

Key Outcomes: ENT vs IVT

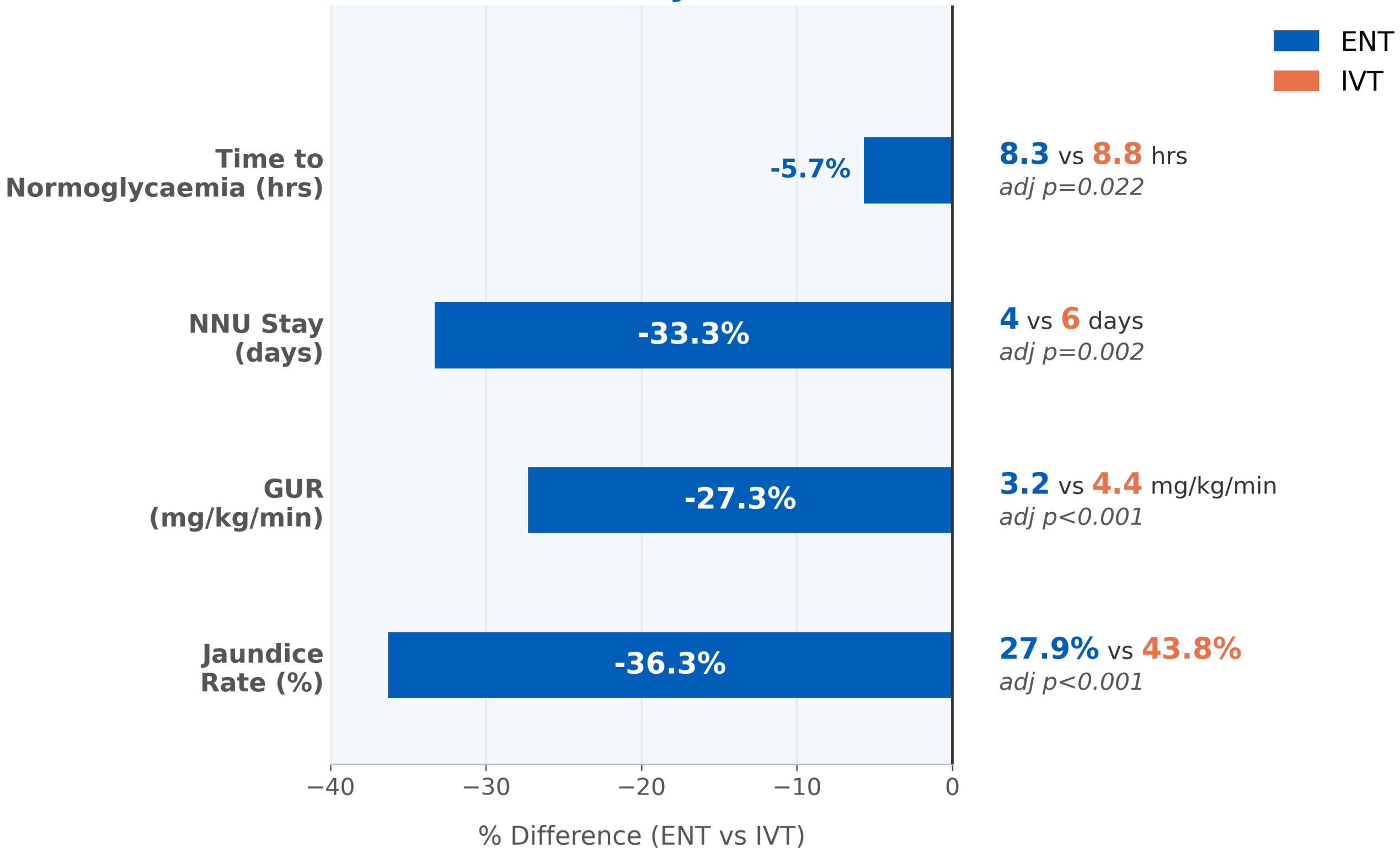


Figure 1. Percentage difference in key clinical outcomes between ENT and IVT groups (n=522 each). Negative values indicate lower values in the ENT group. All p-values adjusted for sepsis, HMD and hypothermia.

Comorbidities: ENT vs IVT

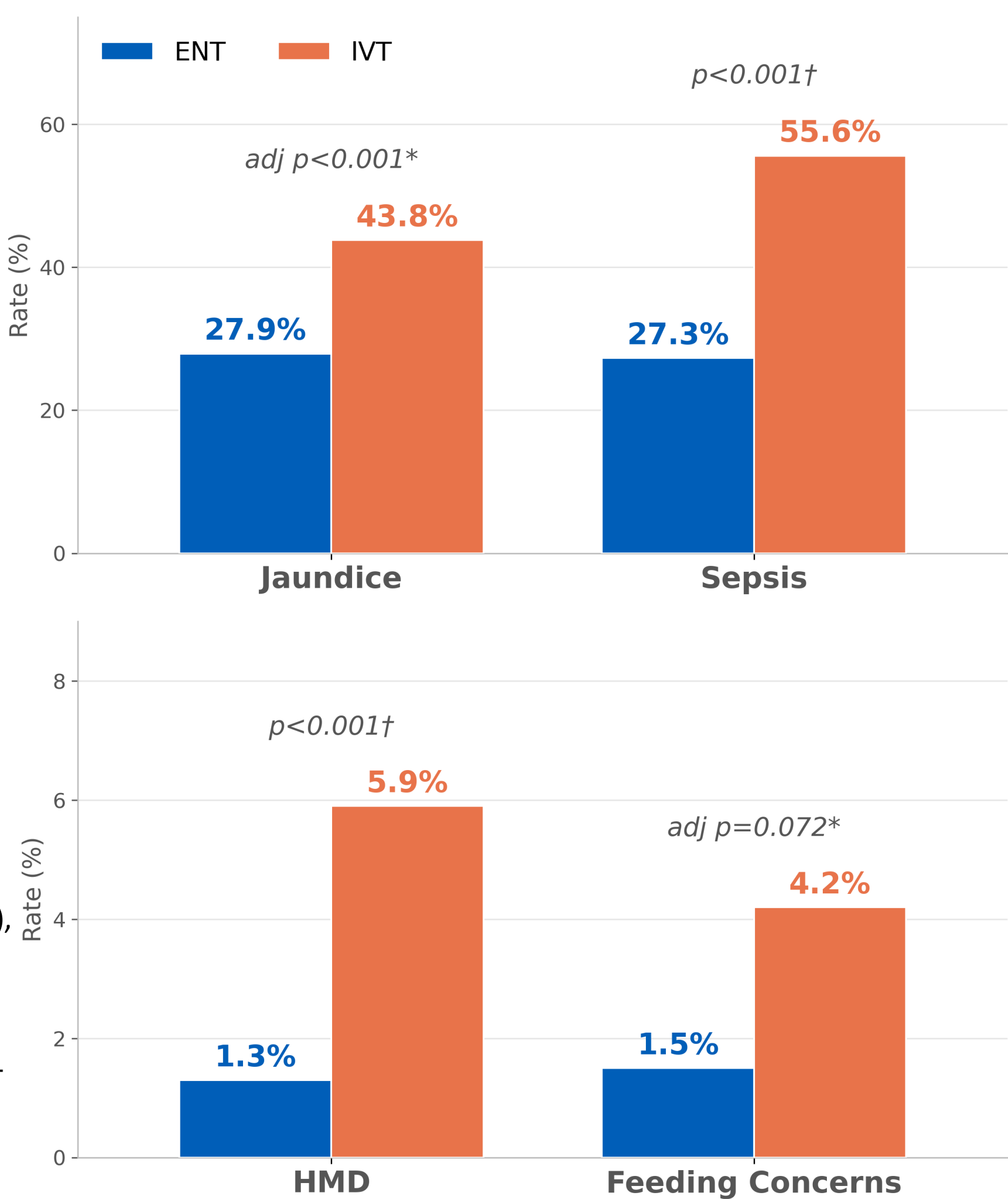


Figure 2. Comorbidity rates by treatment group (n=522 each). Note different y-axis scales. *Adjusted for sepsis, HMD and hypothermia. †Unadjusted.

CONCLUSION

Enteral feeds achieved comparable or faster normoglycaemia, shorter neonatal unit stay, and fewer complications than intravenous therapy alone. These findings support an **enteral-first approach** in clinically stable, feed-tolerant neonates, with IV dextrose reserved for those who require it.